

WORLD DATA CENTER A

Upper Atmosphere Geophysics



REPORT UAG-6

INTERNATIONAL GEOPHYSICAL CALENDARS 1957-1969

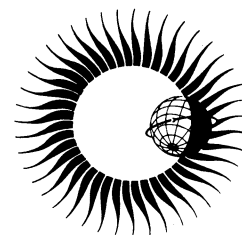
by

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International Geophysical Calendars

1957 - 1969

The International Geophysical Calendars for the years 1957 to 1969 are collected in this report as a convenience to research workers in solar and geophysical sciences. The Calendars have been issued annually and each year get wide distribution as leaflets and in many scientific journals. Since they are then scattered in the scientific literature, it is evident that a single collection will be helpful to the research worker.

According to the plan begun during the International Geophysical Year, solar and geophysical observations which cannot be carried out continuously are recommended to be concentrated on days marked on the Calendar. Thus, the amount of observational data in existence tends to be larger on Calendar days. Further, the recommendations on data reduction and especially the flow of data to World Data Centers in many instances emphasize Calendar days, so the amount of data conveniently available to the scientific community through the WDC will be greater on Calendar days. Therefore, this collection of Calendars should assist research scientists in the selection of periods for study when a maximum amount of data is desired, and in their resulting requests to the WDCs.

The Calendars for 1957 to 1959 were prepared under the auspices of the World Days Program of the Special Committee for the International Geophysical Year of the International Council of Scientific Unions. From 1960 through 1962 the International World Days Service was responsible for their preparation. Since 1963 the dates have been selected by its successor, the International Ursigram and World Days Service, a permanent service of the International Union of Radio Science in association with the International Astronomical Union and the International Union for Geodesy and Geophysics. For the whole period the work was done with the consultation of the interested I.C.S.U. unions and committees, and representatives of the World Meteorological Organization. The authors of the present report have been responsible for the coordination of the work and the preparation of the Calendars throughout this period.

For the IGY and through 1960, the recommendations to the scientific community as to observations, analysis and data flow for days marked on the Calendar were those contained in the Instruction Manuals of the various IGY Programs [1], while information on the construction of the Calendar itself is covered in the IGY Instruction Manual on World Days and Communications [2]. Beginning with 1961 the program recommendations were provided year by year on the back side of the Calendar leaflet. These are reprinted in this report on the page facing the Calendar for

the corresponding years. These texts give detailed information on the Calendar and its role in the overall coordination of solar and geophysical observations and data flow.

The publication of this collection was recommended by the Officers of the International Ursigram and World Days Service and has been accomplished through the kind cooperation of World Data Center A, Upper Atmosphere Geophysics.

REFERENCES

- [1] Annals of the International Geophysical Year, Pergamon Press 1957-1958
 - Vol. III, Part I Instruction Manual for the Ionosphere, pp. 1-167
 - Vol. IV, Part II Instruction Manual for Aurora and Airglow, pp. 23-138
 - Vol. IV, Part IV Instruction Manual for Geomagnetism, pp. 207-329✓
 - Vol. V, Part IV Instruction Manual for Solar Activity, pp. 251-301
 - Vol. VI, Part I Manual on Rockets and Satellites, pp. 1-508
 - Vol. IV, Part VII Instruction Manual for Cosmic Radiation, pp. 349-393
- [2] Ibid
 - Vol. II, Part I Instruction Manual for World Days and Communications, pp. 11-12

January 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

March 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
						1 $\frac{1}{8}$
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

May 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
						1
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

July 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

August 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
$\frac{24}{31}$	25	26	27	28	29	30

September 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
						1
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

October 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

November 1958

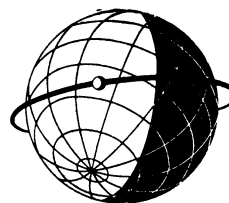
Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
$\frac{23}{30}$	24	25	26	27	28	29

December 1958

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
						1
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

January 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



International Geophysical Cooperation 1959

Final Calendar

1959 JANUARY 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1959 FEBRUARY 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

1959 MARCH 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1959 APRIL 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1959 MAY 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

1959 JUNE 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1959 JULY 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1959 AUGUST 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

1959 SEPTEMBER 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1959 OCTOBER 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1959 NOVEMBER 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

1959 DECEMBER 1959

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1960 JANUARY 1960

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

- ③ Regular World Day
- ⑧ Regular World Day with highest priority
- ⑨ Regular World Day with unusual meteoric activity
- ⑩ Regular World Day with highest priority and unusual meteoric activity
- ② Day of total eclipse

Regular World Interval (RWI)

World Meteorological Interval (WMI)

U. R. S. I.

International Geophysical Calendar 1960

Issued October 1959 by the International World Day Service under the auspices of the International Council of Scientific Unions

1960	JANUARY							1960
S	M	T	W	T	F	S		
					1	2		
3	4	5	6	7	8	9		
10	11	12	13	14	15	16	*	
* 17	18	19	20	21	22	23		
24	25	26	27	28	29	30		
31								

1960		FEBRUARY							1960	
S	M	T	W	T	F	S				
		1	2	3	4	5	6			
7	8	9	10	11	12	13				
14	15	16	17	18	19	20				
21	22	23	24	25	26	27				
28	29									

1960	MARCH							1960
S	M	T	W	T	F	S		
			1	2	3	4	5	
6	7	8	9	10	11	12		
13	14	15	16	17	18	19		
20	21	22	23	24	25	26		
27	28	29	30	31				

1960		APRIL							1960	
S	M	T	W	T	F	S				
					1	2				
3	4	5	6	7	8	9				
10	11	12	13	14	15	16				
17	18	19	20	21	22	23				
24	25	26	27	28	29	30				

1960		MAY					1960	
S	M	T	W	T	F	S		
1	2	3	4	5	6	7		
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
22	23	24	25	26	27	28		
29	30	31						

1960		JUNE							1960	
S	M	T	W	T	F	S				
				1	2	3	4			
5	6	7	8	9	10	11				
12	13	14	15	16	17	18				
19	20	21	22	23	24	25				
26	27	28	29	30						

1960		JULY					1960	
S	M	T	W	T	F	S		
					1	2		
3	4	5	6	7	8	9		
10	11	12	13	14	15	16		
17	18	19	20	21	22	23		
24	25	26	27	28	29	30		
31								

1960		AUGUST							1960	
S	M	T	W	T	F	S				
		1	2	3	4	5	6			
7	8	9	10	11	12	13				
14	15	16	17	18	19	20				
21	22	23	24	25	26	27				
28	29	30	31							

1960	SEPTEMBER							1960
S	M	T	W	T	F	S		
					1	2	3	
4	5	6	7	8	9	10		
11	12	13	14	15	16	17	**	
**	18	19	20	21	22	23	24	
25	26	27	28	29	30			

1960		OCTOBER					1960	
S	M	T	W	T	F	S		
						1		
2	3	4	5	6	7	8		
9	10	11	12	13	14	15		
16	17	18	19	20	21	22		
23	24	25	26	27	28	29		
30	31							

1960		NOVEMBER							1960	
S	M	T	W	T	F	S				
			1	2	3	4	5			
6	7	8	9	10	11	12				
13	14	15	16	17	18	19				
20	21	22	23	24	25	26				
27	28	29	30							

1960		DECEMBER							1960	
S	M	T	W	T	F	S				
						1	2	3		
4	5	6	7	8	9	10				
11	12	13	14	15	16	17				
18	19	20	21	22	23	24				
25	26	27	28	29	30	31				

1961	JANUARY							1961
S	M	T	W	T	F	S		
1	2	3	4	5	6	7		
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
22	23	24	25	26	27	28		
29	30	31						

- (12) Regular World Day
- (18) Regular World Day with highest priority
- 21 Day with unusual meteoric activity
- 27 Day of solar eclipse

17 18 19 20 21 Regular World Interval (RWI) combined with
22 23 24 25 26 World Meteorological Interval (WMI)

Notes * January 11 to 20 is WMI only.
 ** September 16 to 22 is Provisional International Rocket Week, dates to be confirmed by Co SPAR

International Geophysical Calendar 1961

1. **Purpose.** — The International Geophysical Calendar 1961 designates selected days and intervals for special attention for geophysical experiments and analysis and is thus a framework for world-wide coordination. It serves mainly the branches of geophysics dealing with the earth's atmosphere in which many phenomena vary significantly during the course of a year. In some experiments, such as the routine recording of variations of the earth's magnetic field, the observing and analysis programs at observatories are normally carried out at a uniform level throughout the year; in these cases the Calendar is not needed. However, in many other experiments (for example, rocket experiments), it is not practical or meaningful to carry out the same program on each and every day. Here the Calendar can provide a useful mechanism for coordination: experimenters will know that their colleagues in other countries, in other laboratories and in other disciplines will tend to also carry out experiments on the days or intervals marked on the Calendar. In this way, results of experiments may later be more easily and usefully compared.

In some scientific fields, international scientific organizations have made specific recommendations for programs to be done on days or intervals marked on the Calendar. In others, the arrangements are informal or self-evident. Some examples are given below.

2. **Regular World Days (R.W.D.)** are intended for observations or analyses or special experiments which as a practical matter can be done for only about 10 % of days and should be spaced throughout the year. Examples in Ionospheric Physics are: oblique incidence pulse transmission and reception; absorption measurement by pulse reflection technique; extended observing schedule for whistlers and V.L.F. emissions; vertical sounding ionograms by f -plot, h' -plot, etc.; hourly reduction from ionograms of F-region true height parameters « h_c » and « q_c ».

The R.W.D. with highest priority are for similar work which can be undertaken for only one day each month. A specific example is the program recommended by U.R.S.I. for exchange of copies of original ionograms in ionospheric vertical sounding work.

3. **Regular World Intervals (R.W.I.)** are intended for experiments which for practical reasons cannot be carried on continuously, but for which statistics of seasonal variations are especially needed. Ionospheric drift and high atmosphere wind measurements are two examples. Schedules for interchange of sample detailed data in several disciplines have made use of the R.W.I. A combination of the R.W.I. and R.W.D. provides a sampling of variations throughout the year but with improved statistics at the equinoxes and solstices.

4. **World Meteorological Intervals (W. M. I.)** are intended to cover the times of marked seasonal change in certain upper air meteorological phenomena which tend to come about a month after the equinoxes and solstices. The W. M. I. are periods designated by COSPAR for carrying out synoptic meteorological rocket programs, with launchings at a network of stations up to 50 kilometers or more, at least once daily during the 10-days intervals. The W.M.I. have also been used during and since the I.G.Y. for balloon sounding programs either with special instruments or launchings to unusually high balloon altitudes.

5. **International Rocket Week (I.R.W.)**, selected by COSPAR, provide two periods during the year for special emphasis of scientific studies by means of rockets. The first I.R.W. includes the time of the February 15 solar eclipse and is intended for study of solar effects on the atmosphere. The second I.R.W. was selected for study of (northern hemisphere) summer atmospheric structure. Appropriate associated data from nearby ground geophysical stations will be especially useful during I.R.W.

6. **Other Special Days** marked on the Calendar include the days of the two 1961 solar eclipses when special programs may be expected to be carried out in appropriate parts of the world to study eclipse effects on the earth's atmosphere. Ionospheric stations customarily increase their observing programs even if the magnitude of eclipse at their location is small. Many solar activity observatories take extra observations and issue specially detailed reports to assist the interpretation of the geophysical efforts. Also shown are days when meteor shower activity is unusually high. Geophysicists using meteor techniques often enhance their observing programs on these days. Attention is also called to these days in case ionization produced by meteors may account for unusual effects in other geophysical experiments.

7. **Special Intervals not appearing on Calendar.** — Periods of great magnetic, auroral and ionospheric disturbance are also of great geophysical interest. World-wide coordination of observation is especially useful for stations not near the auroral zones places where the beginning of a major disturbance may not be immediately apparent from local observations. Notices of *Geophysical Alerts* and *Special World Intervals (SWI)* are distributed by telegram or radio broadcast on a current basis by the solar-geophysical Regional Warning Centers, whose telegraphic addresses are as follows: AGIWARN WASHINGTON (U. S. A.); AGI KOKUBUNJI (Japan); NIZMIR MOSCOW (U. S. S. R.); IONOSPHERE DARMSTADT (G.F.R.) or GENTELABO PARIS (France) or A.G.I. NEDERHORSTEN-BERG (Netherlands). The meteorological telecommunications network coordinated by W.M.O. carried such information once daily soon after 1600 U.T. Many geophysical stations increase their programs or carry on special experiments during disturbed periods. Prompt notification of major solar flare events which have important and sometimes long lasting geophysical effects are also undertaken through the Regional Warning Centers.

8. **The International World Day Service (I.W.D.S.)** was established in 1958 by the International Council of Scientific Unions (I.C.S.U.) and is administered by the International Scientific Radio Union (U.R.S.I.), 7, Place Emile Danco, Brussels 18, Belgium. This Calendar has been drawn up by A. H. Shapley and J. V. Lincoln in consultation with interested I.C.S.U. unions and committees and representatives of the W.M.O. A fuller description of the Calendar is appearing in the *U.R.S.I. Information Bulletin* and various widely available scientific publications.

International Geophysical Calendar 1961

Issued November 1960 by the International World Day Service under the auspices of U. R. S. I.

1961	JANUARY							1961
S	M	T	W	T	F	S		
	1	2	3	4	5	6	7	
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
* 22	23	24	25	26	27	28		
29	30	31						

1961		APRIL					1961	
S	M	T	W	T	F	S		
						1		
2	3	4	5	6	7	8		
9	10	11	12	13	14	15		
16	17	18	19	20	21	22		
23	24	25	26	27	28	29		
30								

1961		JULY					1961
S	M	T	W	T	F	S	
						1	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

1961	OCTOBER							1961
S	M	T	W	T	F	S		
1	2	3	4	5	6	7		
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
* 22	23	24	25	26	27	28		
29	30	31						

1962	JANUARY							1962
S	M	T	W	T	F	S		
		1	2	<u>3</u>	<u>4</u>	5	6	
7	8	9	10	11	12	13		
14	15	16	17	18	19	20		
21	22	23	24	25	26	27		
28	29	30	31					

1961	FEBRUARY							1961
S	M	T	W	T	F	S		
			1	2	3	4		
5	6	7	8	9	10	11		
12	13	14	15	16	17	18	* *	
19	20	21	22	23	24	25		
26	27	28						

1961		MAY					1961
S	M	T	W	T	F	S	
	1	2	3	<u>4</u>	<u>5</u>	6	
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	
28	29	30	31				

1961	AUGUST							1961
S	M	T	W	T	F	S		
			1	2	3	4	5	
6	7	8	9	10	11	12		
13	14	15	16	17	18	19		
20	21	22	23	24	25	26		
27	28	29	30	31				

1961	NOVEMBER							1961
S	M	T	W	T	F	S		
			1	2	3	4		
5	6	7	8	9	10	11		
12	13	14	15	16	17	18		
19	20	21	22	23	24	25		
26	27	28	29	30				

1961		MARCH							1961	
S	M	T	W	T	F	S				
			1	2	3	4				
5	6	7	8	9	10	11				
12	13	14	15	16	17	18				
19	20	21	22	23	24	25				
26	27	28	29	30	31					

1961		JUNE					1961	
S	M	T	W	T	F	S		
					1	2	3	
4	5	6	7	8	9	10		
11	12	13	14	15	16	17		
18	19	20	21	22	23	24		
25	26	27	28	29	30			

1961		SEPTEMBER							1961	
S	M	T	W	T	F	S				
						1	2			
3	4	5	6	7	8	9				
10	11	12	13	14	15	16				
17	18	19	20	21	22	23				
24	25	26	27	28	29	30				

1961		DECEMBER					1961	
S	M	T	W	T	F	S		
						1	2	
3	4	5	6	7	8	9		
10	11	12	13	14	15	16		
17	18	19	20	21	22	23		
24	25	26	27	28	29	30		
31								

(17) Regular World Day (RWD)

(18) RWD with highest priority

21 Day with unusual meteor shower activity

15 Day of solar eclipse

16 17 18 19... World Meteorological Interval (WMI)

14 15 16 17... Regular World Interval (RWI)

(12 13 14 15...) International Rocket Week (IRW)

Notes : (*) WMI in January and October considered most important

(*) Feb. 15, 1961 : RWD with highest priority

International Geophysical Calendar 1962

1. **Purpose**—The International Geophysical Calendar 1962 designates selected days and intervals for special attention for geophysical experiments and analysis during 1962 and is thus a framework for world-wide co-ordination. It serves mainly the branches of geophysics dealing with the earth's atmosphere in which many phenomena vary significantly during the course of a year. In some experiments, such as the routine recording of variations of the earth's magnetic field, the observing and analysis programs at observatories are normally carried out at a uniform level throughout the year; in these cases the Calendar is not needed. However, in many other experiments (for example, rocket experiments), it is not practical or meaningful to carry out the same program on each and every day. Here the Calendar can provide a useful mechanism for coordination: experimenters will know that their colleagues in other countries, in other laboratories and in other disciplines will tend to also carry out experiments on the days or intervals marked on the Calendar. In this way, results of experiments may later be more easily and usefully compared.

In some scientific fields, international scientific organizations have made specific recommendations for programs to be done on days or intervals marked on the Calendar. In others, the arrangements are informal or self-evident. Some examples are given below.

2. **Regular World Days (RWD)** are intended for observations or analyses or special experiments which as a practical matter can be done for only about 10% of days and should be spaced throughout the year. Examples in Ionospheric Physics are: oblique incidence pulse transmission and reception; absorption measurement by pulse reflection technique; extended observing schedule for whistlers and V.L.F. emissions; vertical sounding ionograms by f-plot, h'-plot, etc.; hourly reduction from ionograms of F-region true height parameters "hc" and "qc".

The RWD with highest priority are for similar work which can be undertaken for only one day each month. A specific example is the program recommended by U.R.S.I. for exchange of copies of original ionograms in ionospheric vertical sounding work.

3. **World Synoptic Intervals (WSI)** are intended for experiments which for practical reasons cannot be carried on continuously, but for which statistics of seasonal variations are especially needed. To simplify the Calendar the Regular World Intervals, World Meteorological Intervals and International Rocket Weeks of past years have been combined for 1962 into one set of intervals. For the sake of the synoptic meteorological rocket programs as designated by COSPAR and WMO the intervals have been placed about a month after the equinoxes and solstices—the times of marked seasonal change in certain upper air meteorological phenomena. During WSI meteorological rockets at a network of stations are launched at least once daily. Balloon sounding programs either with special instruments or launchings to unusually high balloon altitudes have been planned during WSI. Other programs such as ionospheric drift and high atmosphere wind measurements are other examples of suitable programs for such intervals. In several disciplines sample detailed data will provide a sampling of variations throughout the year but with improved statistics during one month of each season.

4. **Other Special Days** marked on the Calendar include the days of solar eclipses, two in 1962 and one in January 1963, when special programs may be expected to be carried out in appropriate parts of the world to study the sun and any eclipse effects on the earth's atmosphere. Ionospheric stations customarily increase their observing programs even if the magnitude of eclipse at their location is small. Many solar activity observatories take extra observations and issue specially detailed reports to assist the interpretation of the geophysical effects. Also shown are days when meteor shower activity is unusual. These include some of the important visual meteor showers and also unusual showers observable mainly by radio and radar techniques. Attention is also called to these days in case ionization produced by meteors may account for unusual effects in other geophysical experiments. The Annual World Meteorological Day, selected as March 23 (not marked on the Calendar), was first celebrated in 1961. Its purpose is to make the services which national meteorological services can render to the various branches of economic development, as well as the activities of the World Meteorological Organization, better known and appreciated by the public of all countries.

5. **Special Intervals not appearing on Calendar**—Periods of great magnetic, auroral and ionospheric disturbance are also of considerable geophysical interest. Worldwide coordination of observation is especially useful for stations not near the auroral zones, that is, places where the beginning of a major disturbance may not be immediately apparent from local observations. Notices of Geophysical Alerts and Special World Intervals (SWI) are distributed by telegram or radio broadcast on a current basis by the solar-geophysical Regional Warning Centers, whose telegraphic addresses are as follows: AGIWARN WASHINGTON (U.S.A.); AGI KOKUBUNJI (Japan); NIZMIR MOSCOW (U.S.S.R.); IONOSPHERE DARMSTADT (G.F.R.) or GENTELABO PARIS (France) or A.G.I. NEDERHORSTDENBERG (Netherlands). The meteorological telecommunications network coordinated by W.M.O. carries such information once daily soon after 1600 U.T. Many geophysical stations increase their programs or carry on special experiments during disturbed periods. Prompt notification of immediately significant geophysical observations and of major solar flare events which have important and sometimes long lasting geophysical effects, are also undertaken through the Regional Warning Centers.

5. **The International World Day Service (I.W.D.S.)** was established in 1958 by the International Council of Scientific Unions (I.C.S.U.) and is administered by the International Scientific Radio Union (U.R.S.I.), 7, Place Emile Danco, Brussels 18, Belgium. This Calendar has been drawn up by A. H. Shapley and J. V. Lincoln in consultation with interested I.C.S.U. unions and committees and representatives of the W.M.O. A fuller description of the Calendar has appeared in the U.R.S.I. Information Bulletin and various widely available scientific publications.

International Geophysical Calendar 1962

Issued October 1961 by the International World Day Service under the auspices of U. R. S.I.

1962	JANUARY							1962
S	M	T	W	T	F	S		
		1	2	<u>3</u>	<u>4</u>	5	6	
7	8	9	10	11	12	13		
14	15	<u>16</u>	<u>17</u>	<u>18</u>	19	20		
<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>	26	27		
28	29	30	31					

1962		FEBRUARY					1962	
S	M	T	W	T	F	S		
				1	2	3		
4	5	6	7	8	9	10		
11	12	13	14	15	16	17		
18	19	20	21	22	23	24		
25	26	27	28					

1962		MARCH					1962
S	M	T	W	T	F	S	
				1	2	3	
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	
25	26	27	28	29	30	31	

1962	APRIL							1962
S	M	T	W	T	F	S		
1	2	3	4	5	6	7		
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
22	23	24	25	26	27	28		
29	30							

1962		MAY					1962
S	M	T	W	T	F	S	
		1	2	3	<u>4</u>	<u>5</u>	
6	7	8	<u>9</u>	10	11	12	
13	14	(15)	(16)	(17)	18	19	
20	21	22	23	24	25	26	
27	28	29	30	31			

1962		JUNE					1962	
S	M	T	W	T	F	S		
					1	2		
3	4	5	6	7	8	9		
<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>		
<u>17</u>	18	<u>19</u>	<u>20</u>	<u>21</u>	22	23		
24	25	26	27	28	29	30		

1962	JULY							1962
S	M	T	W	T	F	S		
1	2	3	4	5	6	7		
8	9	10	11	12	13	14		
15	16	17	18	19	20	21		
22	23	24	25	26	27	28		
29	30	31						

1962		AUGUST					1962
S	M	T	W	T	F	S	
			1	2	3	4	
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30	31		

1962		SEPTEMBER					1962
S	M	T	W	T	F	S	
						1	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30							

1962	OCTOBER							1962
S	M	T	W	T	F	S		
	1	2	3	4	5	6		
7	8	9	10	11	12	13		
14	15	16	17	18	19	20		
21	22	23	24	25	26	27		
28	29	30	31					

1962		NOVEMBER					1962
S	M	T	W	T	F	S	
				1	2	3	
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	
25	26	27	28	29	30		

1962		DECEMBER					1962
S	M	T	W	T	F	S	
						1	
2	3	4	5	6	7	8	
9	10	11	<u>12</u>	<u>13</u>	<u>14</u>	15	
16	17	<u>18</u>	<u>19</u>	<u>20</u>	21	<u>22</u>	
23	24	25	26	27	28	29	
30	31						

1963	JANUARY							1963
S	M	T	W	T	F	S		
			1	2	3	4	5	
6	7	8	9	10	11	12		
13	14	15	16	17	18	19		
20	21	22	23	24	25	26		
27	28	29	30	31				

17 Regular World Day (RWD) 18 RWD with highest priority

31 Day of Solar Eclipse

7 Day with unusual meteor shower activity

16 17 18 19 . . . World Synoptic Interval, (WSI), combining World Meteorological Interval, Regular World Interval, International Rocket Week.

International Geophysical Calendar 1963

1. **Purpose**—The International Geophysical Calendar designates selected days and intervals for special attention for geophysical experiments and analysis and is thus a framework for world-wide co-ordination. The Calendar serves mainly the branches of geophysics dealing with the earth's atmosphere in which many phenomena vary significantly during the course of a year. In some experiments, such as the routine recording of variations of the earth's magnetic field, the observing and analysis programs at observatories are normally carried out at a uniform level throughout the year; in these cases the Calendar is not needed. However, in many other experiments (for example, rocket experiments), it is not practical or meaningful to carry out the same program on each and every day. Here the Calendar can provide a useful mechanism for co-ordination; experimenters will know that their colleagues in other countries, in other laboratories, and in other disciplines will tend to also carry out experiments on the days or intervals marked on the Calendar. In this way, results of experiments may later be more easily and usefully compared.

In some scientific fields, international scientific organizations have made specific recommendations for programs to be done on days or intervals marked on the Calendar. In others, the arrangements are informal or self-evident. Some examples are given below.

2. **Regular World Days (RWD)** are intended for observations or analyses or special experiments which as a practical matter can be done for only about 10% of days and should be in groups of three consecutive days and spaced throughout the year. One day of each group of three is designated as the "RWD" with highest priority and may be used for similar work which can be undertaken for only one day each month. Examples of suitable programs in Ionospheric Physics are: oblique incidence pulse transmission and reception; absorption measurement by pulse reflection technique; extended observing schedule for whistlers and V.L.F. emissions; analysis of vertical sounding ionograms by f-plot, h'-plot, etc.; hourly reduction from ionograms of F-region true height parameters "hc" and "qc". It is recommended that exchange of copies of original ionograms in ionospheric vertical sounding work be made for the RWD with highest priority.

3. **World Geophysical Intervals (WGI)** are intended for experiments which for practical reasons cannot be carried on continuously, but for which statistics of seasonal variations are especially needed. The choice of intervals has been heavily influenced by the needs of the meteorology discipline. The intervals in 1963 are placed about a month after the equinoxes and solstices which are times of marked seasonal change in certain upper air meteorological phenomena. The co-ordinated international programs for meteorology call for extra effort in synoptic rocket sounding and balloon sounding during the WGI. Other programs such as ionospheric drift and high atmosphere wind measurements are other examples of suitable programs for such intervals.

4. **Other Special Days** marked on the Calendars include rocket-winds days, the days of solar eclipses, and days of unusual meteor shower activity. The **rocket-winds** days (Feb. 24, 25, 26) have been selected by COSPAR for a series of simultaneous rocket measurements of winds in the lower ionosphere (up to about 200 km) by techniques such as grenades, sodium clouds and visible grenade glows. COSPAR further recommends that simultaneous ground-based measurements by radio methods also be made on these dates. The **solar eclipses** (Jan. 25, July 20, 1963; Jan. 14, 1964) are occasions when special programs may be expected to be carried out in appropriate parts of the world to study the sun and any eclipse effects on the earth-atmosphere. The geomagnetism discipline has called special attention to these eclipses. Ionospheric stations customarily increase their observing programs even if the magnitude of eclipse at their location is small. Many solar activity observatories take extra observations and issue specially detailed reports to assist the interpretation of the geophysical effects. The days with unusual **meteor shower** activity include some of the important visual meteor showers and also unusual showers observable mainly by radio and radar techniques. Attention is called to these days in case ionization produced by meteors may account for unusual effects in other geophysical experiments. The annual **World Meteorological Day**, selected by the W.M.O. as March 23 (not marked on the Calendar), was first celebrated in 1961. Its purpose is to make the services which national meteorological services can render to the various branches of economic development, as well as the activities of the World Meteorological Organization, better known and appreciated by the public of all countries.

5. **World Days for the International Years of the Quiet Sun, 1964-65.** This present Calendar also shows January 1964 which is the first month of IQSY. This month therefore shows a pattern of world days which is somewhat different from 1963, but which will be followed in the International Geophysical Calendars for the IQSY period. The **Regular Meteorological Days** are each Wednesday (U.T.) on which it is recommended that particular efforts be made to obtain the maximum quantity of data, including rocket ascents and ozone radiation sonde ascents, as well as maximum altitude balloon ascents at 0000 and 1200 U.T. The **World Geophysical Intervals** for IQSY have been extended to cover 14 days.

6. **Special Intervals not appearing on Calendar**—Periods of great magnetic, auroral and ionospheric disturbance are also of considerable geophysical interest. World-wide co-ordination of observation is especially useful for stations not near the auroral zones, that is, places where the beginning of a major disturbance may not be immediately apparent from local observations. Notices of Geophysical Alerts and Special World Intervals (SWI) are distributed by telegram or radio broadcast on a current basis by the solar-geophysical Regional Warning Centers of the I.U.W.D.S., whose telegraphic addresses are as follows:

AGIWARN WASHINGTON (U.S.A.); DEMPA KOKUBUNJI (Japan); NIZMIR MOSCOW (U.S.S.R.); IONOSPHERE DARMSTADT (G.F.R.) or GENTELABO PARIS (France) or AGI NEDERHORSTDENBERG (Netherlands). The meteorological telecommunications network co-ordinated by W.M.O. carries such information once daily soon after 1600 U.T. Many geophysical stations increase their programs or carry on special experiments during disturbed periods. Prompt notification of immediately significant geophysical observations and of major solar flare events which have important and sometimes long lasting geophysical effects, are also undertaken through the Regional Warning Centers.

7. **The International Ursigram and World Days Service** (I.U.W.D.S.) is a permanent service of the International Scientific Radio Union (U.R.S.I.), adhering to the Federation of Astronomical and Geophysical Services of the International Council of Scientific Unions (I.C.S.U.). This Calendar has been drawn up by A. H. Shapley and J. V. Lincoln in consultation with interested I.C.S.U. unions and committees, and representatives of the W.M.O. A fuller description of such Calendars has appeared in the U.R.S.I. Information Bulletin and various widely available scientific publications.

International Geophysical Calendar 1963

Issued October 1962 by the International Ursigram and World Days Service under the auspices of U.R.S.I.

1963 JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1963 FEBRUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

1963 MARCH

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1963 APRIL

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

1963 MAY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1963 JUNE

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1963 JULY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

1963 AUGUST

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1963 SEPTEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

1963 OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1963 NOVEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

1963 DECEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1964 JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

⑰ Regular World Day (RWD)

⑱ RWD with highest priority

20 Day of Solar Eclipse

24 Rocket-winds Days

7 Day with unusual meteor shower activity

15 Regular Meteorological Day

16 17 18 19 World Geophysical Interval, (WGI)

International Geophysical Calendar for the International Years of the Quiet Sun, 1964 and 1965

1. **Purpose**—The International Geophysical Calendar designates days and intervals selected for special attention for geophysical observations, experiments, data interchange or analyses. It is thus a framework for world-wide and interdisciplinary coordination in those programs where it is not practical or meaningful to carry out the same work for each and every day. The Calendar serves mainly the branches of geophysics dealing with the earth's atmosphere. A principal use is for the coordination of the sampling of the many phenomena which vary significantly during the course of a year. For many geophysical programs, the Committee for the International Years of the Quiet Sun 1964-65 (IQSY) has made recommendations on work to be carried out for the days or intervals marked on the Calendar (see paragraphs 12 to 17 below). It is also common for individual geophysical stations or groups of stations to arrange some of their plans of observations according to the Calendar. Thus geophysicists can expect that their colleagues in other countries, in other laboratories and in other geophysical disciplines will tend to be making increased efforts for the days and intervals marked on the Calendar; the amount of geophysical data in existence, at the World Data Centers and elsewhere, will accordingly be greater for Calendar days.

This abbreviated explanation of the International Geophysical Calendar is adapted from IQSY Manual No. 1, World Days Program, issued 1963 by the IQSY Secretariat, 6 Cornwall Terrace, London NW 1, Great Britain. The Manual should be consulted for full details on the Calendar and other IQSY world days such as solar and geophysical Alerts and the Retrospective World Intervals.

2. **Universal Time (U.T.)** is the standard of time for all world days on the Calendar, i.e., each begins at 0000 UT and ends at 2400 UT.

3. **Regular Geophysical Days (RGD)** are each Wednesday throughout the IQSY 1964-1965. This weekly sampling schedule is particularly designed for the purposes of the meteorological program of IQSY but has also been adopted for some other geophysical programs.

4. **Regular World Days (RWD)** are three consecutive days each month, always Tuesday, Wednesday, Thursday near the middle of the month. They are intended for observations, experiments or analyses which can or need be made for about 10% of days and which should be spaced (in groups of three days) throughout the year.

5. **Priority Regular World Days (PRWD)** are one day each month — the RWD which are also a RGD (Wednesday). They are for work which can or needs to be done only one day each month throughout the year.

6. **Quarterly World Days (QWD)** are one day in each quarter of the year. They are the PRWD which fall within the World Geophysical Intervals (WGI) and are also a RGD (Wednesday). The QWD serve to co-ordinate seasonal high-altitude rocket experiments.

7. **World Geophysical Intervals (WGI)** during IQSY are 14 consecutive days in each season, beginning on the second Monday of the selected months. They always include the three RWD of the month and the QWD for the season. Some of the WGI are considered of higher priority than others in certain programs. The WGI are intended for intensified programs aimed at the statistics of seasonal variations or the timing of seasonal changes. The schedule of WGI relative to the equinoxes and solstices is deliberately made different from year to year so that in due course a WGI will cover the time of seasonal change of each of various geophysical phenomena.

8. **Solar Eclipses**, whether total, annular or partial, are marked on the Calendar. Geophysical stations in the eclipse zones treat these days as world days and undertake special programs to study eclipse effects on the earth's atmosphere. For maps of the eclipse zones and pertinent details, see IQSY Manual for the World Days Program or any standard astronomical ephemeris or year-book.

9. **Meteor Showers** of special interest are also marked on the Calendar, including some of the important visual showers and also unusual showers observable mainly by radio and radar techniques. Attention is called to these days (selected by P. Millman (Ottawa)) in case ionization produced by meteors may account for unusual effects in other geophysical experiments.

10. **"World Days" not appearing on Calendar**—The occurrence of unusual solar or geophysical conditions are announced or forecast through various types of geophysical "Alerts" which are widely distributed by telegram and radio broadcast on a current schedule. The types of alerts are: magnetic storm (in telegrams MAGSTORM), magnetic calm (MAGCALME), solar flare (SOLFLARE), solar activity (SOLACTIVITY), solar calm (SOLCALME), cosmic ray event (COSMIC EVENT), and sudden and unusual stratospheric warmings (STRAT-WARM). These Alerts are issued by the IQSY-IUWDS World Warning Agency or under certain circumstances by one of the solar-geophysical Regional Warning Centers. The meteorological telecommunications network coordinated by WMO carries the world-wide Alerts once daily soon after 0400 UT (as from Oct. 1963). Many geophysical stations in the various disciplines increase their programs or carry on special experiments to take advantage of the special solar or geophysical conditions during the period of Alert. The IQSY Manual for the World Days Program contains full details, including recommended scientific programs. Selections of **Retrospective World Intervals**, after a delay of a few weeks or months, are also announced by the World Warning Agency. An additional service of the Regional Warning Centers is to notify geophysical and solar stations promptly (**Ursigrams**) with summary details of immediately significant geophysical observations and of major solar events which have important and sometimes long-lasting geophysical effects. The telegraphic addresses of the Regional Warning Centers are as follows: AGIWARN WASHINGTON (USA); DEMA KOKUBUNJI (JAPAN); NIZMIR MOSCOW (USSR); IONOSPHERE DARMSTADT (G.F.R.) or CNETAGI BAGNEUX (FRANCE) or AGI NEDERHORSTDENBERG (NETHERLANDS).

11. **The International Ursigram and World Days Service (IUWDS)** is a permanent scientific service of the International Union of Radio Science (URSI), with the participation of the International Astronomical Union and the International Union Geodesy and Geophysics. The IUWDS adheres to the Federation of Astronomical and Geophysical Services of the International Council of Scientific Unions. The IUWDS coordinates the international aspects of the world days program and rapid data interchange, and also publishes subsequently an annual **Calendar Record** of solar and geophysical indices and events.

Suggested Scientific Programs for World Days and Intervals on the Calendar

(The following material is adapted from recommendations of the CIG-IQSY Committee, IInd Assembly, Rome, March 1963 (see IQSY Notes No. 3, 1963, issued by IQSY Secretariat) or its Reporters or spokesmen for the various scientific disciplines. Any supplementary recommendations will appear in future issues of IQSY Notes).

12. **Meteorology**—Particular efforts should be made to obtain the maximum quantity of data on the **RGD**—each Wednesday, UT. Rocket ascents and ozone- and radiation-sonde ascents should be made on these days. Maximum altitude balloon ascents should be made at 0000 and 1200 UT.

During **WGI** the following observations should be made at all appropriate stations: (a) on all days: two maximum altitude balloon soundings; (b) on Mondays and Fridays: two maximum altitude balloon soundings, one ozone sounding, one radiation sounding, one rocket sounding; (c) on Wednesdays: at least two and preferably four maximum altitude balloon soundings, one radiation sounding, one ozone sounding, at least one and preferably two rocket soundings. **Note:** where Meteorological Services and Institutes have difficulty in carrying out the recommended programs during all **WGIs**, priority should be given to the **WGI** in October 1964 and March 1965. Stations which are able to carry out the recommended program during only one **WGI** should choose October 1964 if in the Southern Hemisphere and March 1965 if in the Northern Hemisphere.

13. **Geomagnetism**—It has always been a leading principle for geomagnetic observatories that operations should be as continuous as possible. Thus the great majority of stations taking part in the geomagnetic program of the IQSY will undertake the same program without regard to the IQSY Calendar. The days marked on the Calendar will be of interest mainly to the following two types of geomagnetic stations: (a) stations recording quick-run micropulsations (with fast chart speeds) are requested to make such records on every **RGD**—each Wednesday, UT—according to the following schedule: 1964 Jan. 1, from 0000 to 0400 UT; Jan. 8, from 0100 to 0500 UT; Jan. 15, from 0200 to 0600 UT; etc. The observatories are not obliged to send their recordings to the World Data Centers except by special request (see IQSY World Days Manual under Retrospective World Intervals on Micropulsations). (b) Stations which, in addition to other IQSY activities, are equipped for making magnetic observations, but which can not carry out such observations and reductions on a continuous schedule are encouraged to carry out such work at least on **RWD** (and during times of **MAGSTORM** Alert).

Attention is called to the opportunity which the expected quiet conditions of the IQSY period may provide for a profitable study of the geomagnetic effect of **solar eclipses**, marked on the Calendar.

14. **Ionosphere**—For the vertical incidence sounding program, the summary recommendations are (a) soundings to be made at 5-minute intervals or less on **RWDs**; (b) f-plots are made for high latitude stations and representative stations at lower latitudes for

all days (i.e. including **RWDs** and **WGIs**), (c) profile parameters h_p , q_c to be determined and sent to WDCs for **RWDs** for all stations except those undertaking full profile programs or producing monthly median profiles; (d) copies of ionograms for **PRWDs** are to be sent to WDCs; (e) stations in the eclipse zone should take continuous observations on solar eclipse days and special observations on adjacent days in accordance with detailed recommendations in the IQSY World Days or Ionosphere Manuals.

For the ionospheric drifts program, observations are made on all **RWDs**, on all **WGIs**, on every Wednesday (**RGDs**) and on every Thursday (day following each **RGD**). Hourly tabulations for all days mentioned are sent to the WDCs.

For the ionospheric absorption program, diurnal hourly observations are made on all **RWDs** and hourly tabulations sent to WDCs. Continuous observations on **solar eclipse** days, where possible, for stations in eclipse zone.

For back-scatter and forward-scatter programs, observations should be made on all **RWDs** at least.

For topside sounding experiments, it is recommended to send copies of records to WDCs for all **RWDs** at least.

All programs should take notice of the days of unusual **meteor shower** activity in case unusual ionospheric phenomena are noted.

15. **Solar Activity**—Observatories are invited to issue and send to the WDCs of all IQSY disciplines special reports of their regular and any special observations on all **solar eclipse** days to assist in the interpretation of geophysical observations made in the eclipse zones.

The total **solar eclipse** of May 30, 1965 will be characterized by long duration (about 4 minutes) on the central line. It is recommended that comprehensive solar observations be made of this eclipse, both optical and radio.

16. **Cosmic Rays, Aeronomy**—Experimenters should take into account that observational effort in other disciplines tends to be intensified on the days marked on the Calendar, and schedule balloon and rocket experiments accordingly if there are no other geophysical reasons for choice.

17. **Space Research**—In view of the variability of the D and E regions of the ionosphere, it is desirable to make rocket measurements of their characteristics on the same day at as many locations as possible. Where feasible, experimenters should endeavor to launch rockets on the **Quarterly World Days (QWD)** since these are also days when there will be maximum support from ground observations.

TABLE OF WORLD DAYS MARKED ON THE CALENDAR

1964										1965									
1964	RWD	PRWD	QWD	RGD	WGI	ECL.	Meteors	1965	RWD	PRWD	QWD	RGD	WGI	ECL.	Meteors	1965	RWD	PRWD	QWD
Jan.	14, 15, 16	15	15	1, 8, 15, 22, 29	13-26	14	3-4	Jan.	12, 13, 14	13	13	6, 13, 20, 27	11-24	—	3	Jan.	12, 13, 14	13	13
Feb.	18, 19, 20	19	—	5, 12, 19, 26	—	—	—	Feb.	16, 17, 18	17	—	3, 10, 17, 24	—	—	—	Feb.	16, 17, 18	17	—
Mar.	17, 18, 19	18	—	4, 11, 18, 25	—	—	—	Mar.	16, 17, 18	17	17	3, 10, 17, 24, 31	8-21**	—	—	Mar.	16, 17, 18	17	17
Apr.	14, 15, 16	15	15	1, 8, 15, 22, 29	13-26	—	21-22	Apr.	20, 21, 22	21	—	7, 14, 21, 28	—	—	21-22	Apr.	20, 21, 22	21	—
May	19, 20, 21	20	—	6, 13, 20, 27	—	—	4-5	May	18, 19, 20	19	—	5, 12, 19, 26	—	30	4-5	May	18, 19, 20	19	—
June	16, 17, 18	17	—	3, 10, 17, 24	—	10	4-8	June	15, 16, 17	16	16	2, 9, 16, 23, 30	14-27	—	4-8	June	15, 16, 17	16	16
July	14, 15, 16	15	15	1, 8, 15, 22, 29	13-26	9	28-30	July	20, 21, 22	21	—	7, 14, 21, 28	—	—	28-30	July	20, 21, 22	21	—
Aug.	18, 19, 20	19	—	5, 12, 19, 26	—	—	9-13	Aug.	17, 18, 19	18	—	4, 11, 18, 25	—	—	10-14	Aug.	17, 18, 19	18	—
Sep.	22, 23, 24	23	—	2, 9, 16, 23, 30	—	—	—	Sep.	14, 15, 16	15	15	1, 8, 15, 22, 29	13-26	—	—	Sep.	14, 15, 16	15	15
Oct.	20, 21, 22	21	21	7, 14, 21, 28	12-25*	—	19-21	Oct.	19, 20, 21	20	—	6, 13, 20, 27	—	—	19-21	Oct.	19, 20, 21	20	—
Nov.	17, 18, 19	18	—	4, 11, 18, 25	—	—	15-17	Nov.	16, 17, 18	17	—	3, 10, 17, 24	—	23	15-17	Nov.	16, 17, 18	17	—
Dec.	15, 16, 17	16	—	2, 9, 16, 23, 30	—	3-4	12-14, 22	Dec.	14, 15, 16	15	15	1, 8, 15, 22, 29	13-26	—	12-14, 22-23	Dec.	14, 15, 16	15	15

* Priority WGI, particularly Southern Hemisphere

** Priority WGI, particularly Northern Hemisphere

This Calendar for 1964 and 1965 has been drawn up by A. H. Shapley, Chairman, and J. V. Lincoln, Deputy Secretary, of the IUWDS Steering Committee, in close association with the CIG-IQSY Committee and its Reporters and spokesmen for the various scientific disciplines. Similar Calendars have been issued annually beginning with the IGY, 1957-58, and have been published in various widely available scientific publications.

INTERNATIONAL YEARS OF THE QUIET SUN

Issued by the International Ursigram and World Days Service under the auspices of U.R.S.I.

International Geophysical Calendar 1964

1964 JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1964 FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

1964 MARCH

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1964 APRIL

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1964 MAY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1964 JUNE

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

1964 JULY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1964 AUGUST

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1964 SEPTEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

1964 OCTOBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1964 NOVEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

1964 DECEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

17 Regular World Day (RWD)

31 Day of Solar Eclipse

7 Day with unusual meteor shower activity

16 17 World Geophysical Interval (WGI)

24 Quarterly World Day (QWD),
also a PRWD and RGD

18 Priority Regular World Day (PRWD)

15 Regular Geophysical Day (RGD)

+ Priority WGI, particularly Southern Hemisphere

International Geophysical Calendar 1965



1965 JANUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1965 FEBRUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

1965 MARCH

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

1965 APRIL

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

1965 MAY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1965 JUNE

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1965 JULY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1965 AUGUST

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1965 SEPTEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

1965 OCTOBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1965 NOVEMBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

1965 DECEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1966 JANUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

⑰ Regular World Day (RWD)

③ Day of Solar Eclipse

7 Day with unusual meteor shower activity

16-17 World Geophysical Interval (WGI)



Quarterly World Day (QWD), also a PRWD and RGD



Priority Regular World Day (PRWD)



Regular Geophysical Day (RGD)

+

Priority WGI, particularly Northern Hemisphere

IUWDS International Geophysical Calendar for 1966

EXPLANATIONS

1. **Purpose.** The International Geophysical Calendar designates days and intervals selected for special attention for geophysical observations, experiments, data interchange or analyses. It is thus a framework for worldwide and interdisciplinary coordination in those programs where it is not practical or meaningful to carry out the same work for each and every day. The Calendar serves mainly the branches of geophysics dealing with the earth's atmosphere. A principal use is for the coordination of the sampling of the many phenomena which vary significantly during the course of a year. The Calendar is prepared by the International Ursigram and World Days Service (IUWDS) with the advice of the IQSY Reporters or spokesmen for the various scientific disciplines, especially for the suggested scientific programs recommended to be carried out for the days or intervals marked on the Calendar (see paragraphs 11 to 16 below). In addition it is common practice for individual geophysical stations or groups of stations to arrange some of their plans of observations according to the Calendar. Thus geophysicists can expect that their colleagues in other countries, in other laboratories and in other geophysical disciplines will tend to be making increased efforts for the days and intervals marked on the Calendar; the amount of geophysical data in existence, at the World Data Centers and elsewhere, will accordingly be greater for Calendar days.

2. **Universal Time (UT)** is the standard of time for all world days on the Calendar, i.e., each begins at 0000 UT and ends at 2400 UT.

3. **Regular Geophysical Days (RGD)** are each Wednesday throughout the year. This weekly sampling schedule is particularly designed for the purposes of the meteorological program but has also been adopted for some other geophysical programs.

4. **Regular World Days (RWD)** are three consecutive days each month, always Tuesday, Wednesday, Thursday near the middle of the month. They are intended for observations, experiments or analyses which can or need be made for about 10% of days and which should be spaced (in groups of three days) throughout the year.

5. **Priority Regular World Days (PRWD)** are one day each month—the RWD which are also a RGD (Wednesday). They are for work which can or needs to be done only one day each month throughout the year.

6. **Quarterly World Days (QWD)** are one day in each quarter of the year. They are the PRWD which fall within the World Geophysical Intervals (WGI) and are also a RGD (Wednesday). The QWD serve to coordinate seasonal high-altitude rocket experiments.

7. **World Geophysical Intervals (WGI)** during 1966 are fourteen consecutive days in each season, beginning on the second Monday of the selected months. They always include the three RWD of the month and the QWD for the season. The WGI are intended for intensified programs aimed at the statistics of seasonal variations or the timing of seasonal changes. The schedule of WGI relative to the equinoxes and solstices is deliberately made different from year to year so that in due course a WGI will cover the time of seasonal change of each of various geophysical phenomena; variations from this principle will sometimes be made in order to include a solar eclipse within a WGI.

8. **Solar Eclipses** are May 20 (annular) with central line extending from North Africa to Central Asia, and November 12 (total) with central line extending from the equator west of South America, to a point south of South Africa. Geophysical stations in the eclipse zones treat these days as world days and undertake special programs to study eclipse effects on the earth's atmosphere. For maps of the eclipse zones and pertinent details see any standard astronomical ephemeris or yearbook.

9. **Meteor Showers** of special interest are also marked on the Calendar, including some of the important visual showers and also unusual showers observable mainly by radio and radar techniques. Attention is called to these days (selected by P. Millman, Ottawa) in case ionization produced by meteors may account for unusual effects in other geophysical experiments. In 1966 the Leonid meteor shower, Nov. 16-17, may be stronger than in the last 25 years. Although the Leonids gave spectacular displays in 1833 and 1866-67, planetary perturbations prevented a repeat of these displays in 1900 and 1933.

10. **"World Days" not appearing on Calendar.** The occurrence of unusual solar or geophysical conditions are announced or forecast through various types of geophysical "Alerts" which are widely distributed by telegram and radio broadcast on a current schedule. The types of Alerts are: magnetic storm (in telegrams MAGSTORM), magnetic calm (MAGCALME), solar flare (SOFLARE), solar activity (SOLACTIVITY), cosmic ray event (COSMIC EVENT), and sudden and unusual stratospheric warnings (STRATWARM). These Alerts are issued by the IUWDS World Warning Agency or under certain circumstances by one of the solar-geophysical Regional Warning Centers. The meteorological telecommunications network coordinated by WMO carries the worldwide Alerts once daily soon after 0400 UT. Many geophysical stations in the various disciplines increase their programs or carry on special experiments to take advantage of the special solar or geophysical conditions during the period of Alert. Selections of **Retrospective World Intervals**, after a delay of a few months, are also announced by the World Warning Agency. An additional service of the Regional Warning Centers is to notify geophysical and solar stations promptly (Ursigrams) with summary details of immediately significant geophysical observations and of major solar events which have important and sometimes long-lasting geophysical effects. The telegraphic addresses of the Regional Warning Centers are as follows: AGIWARN WASHINGTON (USA); DEMPJA TOKYO (JAPAN); NIZMIR MOSCOW (USSR); IONOSPHERE DARMSTADT (GFR) or CNETAGI BAGNEUX (FRANCE) or AGI NEDERHORSTDENBERG (NETHERLANDS). Associate RWC operate in some other localities.

The **International Ursigram and World Days Service (IUWDS)** is a permanent scientific service of the International Union of Radio Science (URSI), with the participation of the International Astronomical Union and the International Union Geodesy and Geophysics. IUWDS adheres to the Federation of Astronomical and Geophysical Services of the International Council of Scientific Unions. The IUWDS coordinates the international aspects of the world days program and rapid data interchange, and also publishes subsequently an annual **Calendar Record** of solar and geophysical indices and events.

This Calendar for 1966 has been drawn up by A. H. Shapley, Chairman, and J. V. Lincoln, Deputy Secretary, of the IUWDS Steering Committee, in close association with the CIG Committee and the Reporters and spokesmen for the various IQSY scientific disciplines and COSPAR. Similar Calendars have been issued annually beginning with the IGY, 1957-58, and have been published in various widely available scientific publications.

RECOMMENDED SCIENTIFIC PROGRAMS OPERATIONAL EDITION

(The following material was reviewed in 1965 by scientific working groups of the III Assembly of the IQSY Committee and the 8th Meeting of COSPAR as suitable for coordinated geophysical programs in 1966.)

11. **Meteorology.** Particular efforts should be made to carry out an intensified programme on the RGD—each Wednesday, UT. A desirable goal would be the scheduling of meteorological rocket-sondes, ozone sondes and radiometer sondes on these days, together with maximum-altitude rawinsonde ascents at both 0000 and 1200 UT.

During WGI and STRATWARM alert intervals, intensified programmes are also desirable, preferably by the implementation of RGD-type programmes (see above) on Mondays and Fridays, as well as on Wednesdays.

12. **Geomagnetism.** It has always been a leading priority for geomagnetic observatories that operations should be as continuous as possible. Thus the great majority of stations taking part in the geomagnetic program will undertake the same program without regard to the Calendar. The days marked on the Calendar will be of interest mainly to the following two types of geomagnetic stations: (a) Stations recording quick-run micropulsations (with fast chart speeds) are requested to make such records on every RGD—each Wednesday, UT—according to the following schedule: 1966 Jan. 5 from 1400 to 1800 UT; Jan. 12 from 1500 to 1900 UT; Jan. 19 from 1600 to 2000 UT; etc. The observatories are not obliged to send their recordings to the World Data Centers except by special request (see IQSY World Days Manual under Retrospective World Intervals on Micropulsations). (b) Stations which, in addition to other activities, are equipped for making magnetic observations, but which can not carry out such observations and reductions on a continuous schedule are encouraged to carry out such work at least on RWD (and during times of MAGSTORM Alert).

13. **Ionosphere.** For the vertical incidence sounding program, the summary recommendations are: (a) soundings to be made at five minute intervals or less on RWDs for stations normally making observations every quarter hour or at more frequent intervals; all stations are recommended to make at least quarter hourly observations on RWDs; (b) f-plots are made for high latitude stations and representative stations at lower latitudes for all days (i.e., including RWDs and WGIs); (c) profile parameters h_p , q or recommended similar parameters to be determined and sent to WDCs for RWDs for all stations except those undertaking full profile programs or producing monthly median profiles; (d) copies of hourly ionograms with appropriate scales for PRWDs are to be sent to WDCs; (e) stations in the eclipse zone should take continuous observations on solar eclipse days and special observations on adjacent days in accordance with detailed recommendations in Ionosphere Manuals. Continuous records of ionospheric parameters are acceptable in place of f-plots at temperate and low latitude stations.

For the ionospheric drifts program, observations are made at least on all RWDs, on all WGIs, on every Wednesday (RGDs) and on every Thursday (day following each RGD). Hourly tabulations for all days mentioned are sent to the WDCs. It is essential that sufficient observations be made to provide representative values of the diurnal variations. Hourly tabulations for this purpose should also be sent to WDCs.

For the ionospheric absorption program, diurnal hourly observations are made at least on all RWDs and hourly tabulations sent to WDCs. Continuous observations on solar eclipse days, where possible, for stations in eclipse zone. Special efforts should be made to obtain additional absorption measurements at temperate latitude stations during the period of Absorption Winter Anomaly, particularly on days of abnormally high or abnormally low absorption (approximately November-March, Northern Hemisphere; May-September, Southern Hemisphere).

For back-scatter and forward-scatter programs, observations should be made on all RWDs at least.

For topside sounding experiments, it is recommended to send copies of records to WDCs for all RWDs at least.

It is recommended that more intensive observations in all programmes be considered on days of unusual meteor activity. (See paragraph 9 above on the Leonid shower, Nov. 16-17.)

14. **Solar Activity.** Observatories are invited to issue and send to the WDCs of all disciplines special reports of their regular and any special observations on all solar eclipse days to assist in the interpretation of geophysical observations made in the eclipse zones. The total eclipse of November 12, 1966, although of relatively short duration, is of some special interest for astronomers and geophysicists since the path lies in low geomagnetic latitudes and near several long-established geophysical observatories.

15. **Cosmic Rays, Aeronomy.** Experimenters should take into account that observational effort in other disciplines tends to be intensified on the days marked on the Calendar, and schedule balloon and rocket experiments accordingly if there are no other geophysical reasons for choice.

16. **Space Research.** In view of the variability of the D and E regions of the ionosphere, it is desirable to make rocket measurements of their characteristics on the same day at as many locations as possible. Where feasible, experimenters should endeavor to launch rockets on the **Quarterly World Days (QWD)** since these are also days when there will be maximum support from ground observations.

IUWDS International Geophysical Calendar for 1966

1966 JANUARY

S	M	T	W	T	F	S
						1
2	<u>3</u>	<u>4</u>	<u>5</u>	6	7	8
9	10	(11)	(12)	(13)	14	15
16	17	18	(19)	20	21	22
23	24	25	(26)	27	28	29
30	31					

1966 FEBRUARY

S	M	T	W	T	F	S
		1	<u>2</u>	3	4	5
6	7	8	9	10	11	12
13	14	(15)	(16)	(17)	18	19
20	21	22	(23)	24	25	26
27	28					

1966 MARCH

S	M	T	W	T	F	S
		1	<u>2</u>	3	4	5
6	7	8	9	10	11	12
13	14	(15)	(16)	(17)	18	19
20	21	22	(23)	24	25	26
27	28	29	(30)	31		

1966 APRIL

S	M	T	W	T	F	S
					1	2
3	4	5	<u>6</u>	7	8	9
10	11	(12)	(13)	(14)	15	16
17	18	19	(20)	21	22	23
24	25	26	(27)	28	29	30

1966 MAY

S	M	T	W	T	F	S
1	2	3	<u>4</u>	<u>5</u>	<u>6</u>	7
8	9	10	(11)	12	13	14
15	16	(17)	(18)	(19)	(20)	21
22	23	24	(25)	26	27	28
29	30	31				

1966 JUNE

S	M	T	W	T	F	S
			<u>1</u>	2	3	4
5	<u>6</u>	<u>7</u>	(8)	<u>9</u>	<u>10</u>	11
12	13	(14)	(15)	(16)	17	18
19	20	21	(22)	23	24	25
26	27	28	(29)	30		

1966 JULY

S	M	T	W	T	F	S
					1	2
3	4	5	<u>6</u>	7	8	9
10	11	(12)	(13)	(14)	15	16
17	18	19	(20)	21	22	23
24	25	26	(27)	<u>28</u>	<u>29</u>	<u>30</u>
31						

1966 AUGUST

S	M	T	W	T	F	S
	1	2	<u>3</u>	4	5	6
7	8	9	(10)	<u>11</u>	<u>12</u>	<u>13</u>
(14)	15	(16)	(17)	(18)	19	20
21	22	23	(24)	25	26	27
28	29	30	(31)			

1966 SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	<u>6</u>	7	8	9
10	11	12	(13)	(14)	(15)	16
17	18	19	(20)	21	22	23
24	25	26	(27)	28	29	30

1966 OCTOBER

S	M	T	W	T	F	S
						1
2	3	4	<u>5</u>	6	7	8
9	10	(11)	(12)	(13)	14	15
16	17	18	(19)	<u>20</u>	<u>21</u>	22
23	24	25	(26)	27	28	29
30	31					

1966 NOVEMBER

S	M	T	W	T	F	S
		1	<u>2</u>	3	4	5
6	7	8	9	10	11	(12)
13	14	(15)	(16)	(17)	18	19
20	21	22	(23)	24	25	26
27	28	29	(30)			

1966 DECEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	<u>6</u>	7	8	9
10	11	<u>12</u>	(13)	(14)	(15)	16
17	18	19	20	(21)	<u>22</u>	<u>23</u>
24	25	26	27	(28)	29	30
31						

1967 JANUARY

S	M	T	W	T	F	S
1	2	<u>3</u>	<u>4</u>	5	6	7
8	9	10	(11)	12	13	14
15	16	(17)	(18)	(19)	20	21
22	23	24	(25)	26	27	28
29	30	31				

- (11) Regular World Day (RWD)
- (20) Day of Solar Eclipse
- 3 Day with unusual meteor shower activity
- 7 8 World Geophysical Interval (WGI)

- (16) Quarterly World Day (QWD) also a PRWD and RGD
- (12) Priority Regular World Day (PRWD)
- (5) Regular Geophysical Day (RGD)

TABLE OF WORLD DAYS MARKED ON THE CALENDAR

1966	RWD	PRWD	QWD	RGD	WGI	ECL.	METEORS
Jan.	11, 12, 13	12	—	5, 12, 19, 26	—	—	3-4
Feb.	15, 16, 17	16	16	2, 9, 16, 23	7-20	—	—
Mar.	15, 16, 17	16	—	2, 9, 16, 23, 30	—	—	—
Apr.	12, 13, 14	13	—	6, 13, 20, 27	—	—	22
May	17, 18, 19	18	18	4, 11, 18, 25	9-22	20	4-6
June	14, 15, 16	15	—	1, 8, 15, 22, 29	—	—	6-10
July	12, 13, 14	13	—	6, 13, 20, 27	—	—	28-30
Aug.	16, 17, 18	17	17	3, 10, 17, 24, 31	8-21	—	10-14
Sep.	13, 14, 15	14	—	7, 14, 21, 28	—	—	—
Oct.	11, 12, 13	12	—	5, 12, 19, 26	—	—	20-21
Nov.	15, 16, 17	16	16	2, 9, 16, 23, 30	7-20	12	16-17
Dec.	13, 14, 15	14	—	7, 14, 21, 28	—	—	12-14
							22-23

IUWDS International Geophysical Calendar for 1967

EXPLANATIONS

1. **Purpose.** The International Geophysical Calendar designates days and intervals selected for special attention for geophysical observations, experiments, data interchange or analyses. It is thus a framework for worldwide and interdisciplinary coordination in those programs where it is not practical or meaningful to carry out the same work for each and every day. The Calendar serves mainly the branches of geophysics dealing with the earth's atmosphere. A principal use is for the coordination of the sampling of the many phenomena which vary significantly during the course of a year. The Calendar is prepared by the International Ursigram and World Days Service (IUWDS) with the advice of the spokesmen for the various scientific disciplines, especially for the suggested scientific programs recommended to be carried out for the days or intervals marked on the Calendar (see paragraphs 11 to 16 below). In addition it is common practice for individual geophysical stations or groups of stations to arrange some of their plans of observations according to the Calendar. Thus geophysicists can expect that their colleagues in other countries, in other laboratories and in other geophysical disciplines will tend to be making increased efforts for the days and intervals marked on the Calendar; the amount of geophysical data in existence, at the World Data Centers and elsewhere, will accordingly be greater for Calendar days.

2. **Universal Time (UT)** is the standard of time for all world days on the Calendar, i.e., each begins at 0000 UT and ends at 2400 UT.

3. **Regular Geophysical Days (RGD)** are each Wednesday throughout the year. This weekly sampling schedule is particularly designed for the purposes of the meteorological program but has also been adopted for some other geophysical programs.

4. **Regular World Days (RWD)** are three consecutive days each month, always Tuesday, Wednesday, Thursday near the middle of the month. They are intended for observations, experiments or analyses which can or need be made for about 10% of days and which should be spaced (in groups of three days) throughout the year.

5. **Priority Regular World Days (PRWD)** are one day each month—the RWD which are also a RGD (Wednesday). They are for work which can or needs to be done only one day each month throughout the year.

6. **Quarterly World Days (QWD)** are one day in each quarter of the year. They are the PRWD which fall within the World Geophysical Intervals (WGI) and are also a RGD (Wednesday). The QWD serve to coordinate seasonal high-altitude rocket experiments.

7. **World Geophysical Intervals (WGI)** during 1967 are fourteen consecutive days in each season, beginning on the second Monday of the selected months. They always include the three RWD of the month and the QWD for the season. The WGI are intended for intensified programs aimed at the statistics of seasonal variations or the timing of seasonal changes. The schedule of WGI relative to the equinoxes and solstices is usually made different from year to year; however, the schedule for 1967 is similar to 1966 in order to include the solar eclipse of May 9 within a WGI.

8. **Solar Eclipses** are May 9 (partial) observable in North America, Greenland, Iceland, northern Scandinavia, and the north polar regions; and November 2 (total but not central) in a small area in the South Atlantic Ocean just north of Antarctica. Geophysical stations in the eclipse zones and their conjugate areas treat these days as world days and undertake special programs to study eclipse effects on the earth's atmosphere. For maps of the eclipse zones and pertinent details see any standard astronomical ephemeris or yearbook.

9. **Meteor Showers** of special interest are also marked on the Calendar, including some of the important visual showers and also unusual showers observable mainly by radio and radar techniques. Attention is called to these days (selected by P. Millman, Ottawa) in case ionization produced by meteors may account for unusual effects in other geophysical experiments.

10. **"World Days" not appearing on Calendar.** The occurrence of unusual solar or geophysical conditions are announced or forecast through various types of geophysical "Alerts" which are widely distributed by telegram and radio broadcast on a current schedule. The types of Alerts are: magnetic storm (in telegrams MAGSTORM), solar flare (SOLFLARE), cosmic ray event (COSMIC EVENT), and sudden and unusual stratospheric warmings (STRATWARM). These Alerts are issued by the IUWDS World Warning Agency or under certain circumstances by one of the solar-geophysical Regional Warning Centers. The meteorological telecommunications network coordinated by WMO carries the worldwide Alerts once daily soon after 0400 UT. Many geophysical stations in the various disciplines increase their programs or carry on special experiments to take advantage of the special solar or geophysical conditions during the period of Alert. Selections of **Retrospective World Intervals**, after a delay of a few months, are also announced by the World Warning Agency. An additional service of the Regional Warning Centers is to notify geophysical and solar stations promptly (Ursigrams) with summary details of immediately significant geophysical observations and of major solar events which have important and sometimes long-lasting geophysical effects. The telegraphic addresses of the Regional Warning Centers are as follows: AGIWARN WASHINGTON (USA); DEMP TOKYO (JAPAN); NIZMIR MOSCOW (USSR); IONOSPHERE DARMSTADT (GFR) or CNETAGI MEUDON (FRANCE). Associate RWC operate in some other localities.

The International Ursigram and World Days Service (IUWDS) is a permanent scientific service of the International Union of Radio Science (URSI), with the participation of the International Astronomical Union and the International Union Geodesy and Geophysics. IUWDS adheres to the Federation of Astronomical and Geophysical Services of the International Council of Scientific Unions. The IUWDS coordinates the international aspects of the world days program and rapid data interchange, and also publishes subsequently an annual **Calendar Record** of solar and geophysical indices and events.

This Calendar for 1967 has been drawn up by A. H. Shapley, Chairman, and J. V. Lincoln, Deputy Secretary, of the IUWDS Steering Committee, in close association with the CIG Committee and the Reporters and spokesmen for the various scientific disciplines and COSPAR. Similar Calendars have been issued annually beginning with the IGY, 1957-58, and have been published in various widely available scientific publications.

RECOMMENDED SCIENTIFIC PROGRAMS OPERATIONAL EDITION

(The following material was reviewed in 1966 by spokesmen for the various scientific disciplines and the 9th Meeting of COSPAR as suitable for coordinated geophysical programs in 1967.)

11. **Meteorology.** Particular efforts should be made to carry out an intensified program on the RGD—each Wednesday, UT. A desirable goal would be the scheduling of meteorological rocket-sondes, ozone sondes and radiometer sondes on these days, together with maximum-altitude rawinsonde ascents at both 0000 and 1200 UT.

During WGI and STRATWARM alert intervals, intensified programs are also desirable, preferably by the implementation of RGD-type programs (see above) on Mondays and Fridays, as well as on Wednesdays.

12. **Geomagnetism.** It has always been a leading principle for geomagnetic observatories that operations should be as continuous as possible. Thus the great majority of stations taking part in the geomagnetic program will undertake the same program without regard to the Calendar. The days marked on the Calendar will be of interest mainly to the following two types of geomagnetic stations: (a) Stations recording quick-run micropulsations (with fast chart speeds) are requested to make such records on every RGD—each Wednesday, UT—according to the following schedule: 1967 Jan. 4 from 1800 to 2200 UT; Jan. 11 from 1900 to 2300 UT; Jan. 18 from 2000 to 0000 UT; etc. The observatories are not obliged to send their recordings to the World Data Centers except by special request (see IQSY World Days Manual under Retrospective World Intervals on Micropulsations). (b) Stations which, in addition to other activities, are equipped for making magnetic observations, but which can not carry out such observations and reductions on a continuous schedule are encouraged to carry out such work at least on RWD (and during times of MAGSTORM Alert).

13. **Ionosphere.** For the vertical incidence sounding program, the summary recommendations are: (a) soundings to be made at five minute intervals or less on RWDs for stations normally making observations every quarter hour or at more frequent intervals; all stations are recommended to make at least quarter hourly observations on RWDs; (b) f-plots are made for high latitude stations and representative stations at lower latitudes for all days (i.e., including RWDs and WGIs); (c) profile parameters h_p , q_c or recommended similar parameters to be determined and sent to WDCs for RWDs for all stations except those undertaking full profile programs or producing monthly median profiles; (d) copies of hourly ionograms with appropriate scales for PRWDs are to be sent to WDCs; (e) stations in the eclipse zone and its conjugate area should take continuous observations on solar eclipse days and special observations on adjacent days in accordance with detailed recommendations in Ionosphere Manuals. Continuous records of ionospheric parameters are acceptable in place of f-plots at temperate and low latitude stations.

For the ionospheric drifts program, observations are made at least on all RWDs, on all WGIs, on every Wednesday (RGDs) and on every Thursday (day following each RGD). Hourly tabulations for all days mentioned are sent to the WDCs. It is essential that sufficient observations be made to provide representative values of the diurnal variations. Hourly tabulations for this purpose should also be sent to WDCs.

For the ionospheric absorption program, diurnal hourly observations are made at least on all RWDs and hourly tabulations sent to WDCs. Continuous observations on solar eclipse days, where possible, for stations in eclipse zone and its conjugate area. Special efforts should be made to obtain additional absorption measurements at temperate latitude stations during the period of Absorption Winter Anomaly, particularly on days of abnormally high or abnormally low absorption (approximately November-March, Northern Hemisphere; May-September, Southern Hemisphere).

For back-scatter and forward-scatter programs, observations should be made on all RWDs at least.

For topside sounding experiments, it is recommended to send copies of records to WDCs for all RWDs at least.

For ELF noise measurements involving the earth-ionosphere cavity resonances any special effort should be concentrated during the WGI.

It is recommended that more intensive observations in all programs be considered on days of unusual meteor activity.

14. **Solar Activity.** Observatories are invited to issue and send to the WDCs of all disciplines special reports of their regular and any special observations on all solar eclipse days to assist in the interpretation of geophysical observations made in the eclipse zones.

15. **Cosmic Rays, Aeronomy.** Experimenters should take into account that observational effort in other disciplines tends to be intensified on the days marked on the Calendar, and schedule balloon and rocket experiments accordingly if there are no other geophysical reasons for choice.

16. **Space Research.** In view of the variability of the D and E regions of the ionosphere, it is desirable to make rocket measurements of their characteristics on the same day at as many locations as possible. Where feasible, experimenters should endeavor to launch rockets on the Quarterly World Days (QWD) since these are also days when there will be maximum support from ground observations.

IUWDS International Geophysical Calendar for 1967

1967 JANUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1967 FEBRUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

1967 MARCH

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1967 APRIL

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1967 MAY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

1967 JUNE

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

1967 JULY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1967 AUGUST

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1967 SEPTEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1967 OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1967 NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1967 DECEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1968 JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

⑪ Regular World Day (RWD)

⑨ Day of Solar Eclipse

3 Day with unusual meteor shower activity

13-14 World Geophysical Interval (WGI)

⑮ Quarterly World Day (QWD) also a PRWD and RGD

⑮ Priority Regular World Day (PRWD)

④ Regular Geophysical Day (RGD)

TABLE OF WORLD DAYS MARKED ON THE CALENDAR

1967	RWD	PRWD	QWD	RGD	WGI	ECL.	METEORS
Jan.	17, 18, 19	18	—	4, 11, 18, 25	—	—	3-4
Feb.	14, 15, 16	15	15	1, 8, 15, 22	13-26	—	—
Mar.	14, 15, 16	15	—	1, 8, 15, 22, 29	—	—	—
Apr.	11, 12, 13	12	—	5, 12, 19, 26	—	—	22
May	9, 10, 11	10	10	3, 10, 17, 24, 31	8-21	9	4-6
June	13, 14, 15	14	—	7, 14, 21, 28	—	—	6-10
July	18, 19, 20	19	—	5, 12, 19, 26	—	—	28-30
Aug.	15, 16, 17	16	16	2, 9, 16, 23, 30	14-27	—	10-14
Sep.	19, 20, 21	20	—	6, 13, 20, 27	—	—	—
Oct.	17, 18, 19	18	—	4, 11, 18, 25	—	—	20-21
Nov.	14, 15, 16	15	15	1, 8, 15, 22, 29	13-26	2	16-17
Dec.	12, 13, 14	13	—	6, 13, 20, 27	—	—	12-14
							22-23

IUWDS International Geophysical Calendar for 1968

EXPLANATIONS

1. **Purpose.** The International Geophysical Calendar designates days and intervals selected for special attention for geophysical observations, experiments, data interchange or analyses. It is thus a framework for worldwide and interdisciplinary coordination in those programs where it is not practical or meaningful to carry out the same work for each and every day. The Calendar serves mainly the branches of geophysics dealing with the earth's atmosphere. A principal use is for the coordination of the sampling of the many phenomena which vary significantly during the course of a year. The Calendar is prepared by the International Ursigram and World Days Service (IUWDS) with the advice of the spokesmen for the various scientific disciplines, especially for the suggested scientific programs recommended to be carried out for the days or intervals marked on the Calendar (see paragraphs 11 to 16 below). In addition it is common practice for individual geophysical stations or groups of stations to arrange some of their plans of observations according to the Calendar. Thus geophysicists can expect that their colleagues in other countries, in other laboratories and in other geophysical disciplines will tend to be making increased efforts for the days and intervals marked on the Calendar; the amount of geophysical data in existence, at the World Data Centers and elsewhere, will accordingly be greater for Calendar days.

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4. **Regular World Days (RWD)** are three consecutive days each month, always Tuesday, Wednesday, Thursday near the middle of the month. They are intended for observations, experiments or analyses which can or need be made for about 10% of days and which should be spaced (in groups of three days) throughout the year.

5. **Priority Regular World Days (PRWD)** are one day each month—the RWD which are also a RGD (Wednesday). They are for work which can or needs to be done only one day each month throughout the year.

6. **Quarterly World Days (QWD)** are one day in each quarter of the year. They are the PRWD which fall within the World Geophysical Intervals (WGI) and are also a RGD (Wednesday). The QWD serve to coordinate seasonal high-altitude rocket experiments.

7. **World Geophysical Intervals (WGI)** during 1968 are fourteen consecutive days in each season, beginning on the second Monday of the selected months. They always include the three RWD of the month and the QWD for the season. The WGI are intended for intensified programs aimed at the statistics of seasonal variations or the timing of seasonal changes. The schedule of WGI relative to the equinoxes and solstices is usually made different from year to year; thus the WGI have been shifted one month earlier than those of 1967.

8. **Solar Eclipses** are March 28-29 (partial) observable in parts of Antarctica, the South Pacific Ocean and the southern part of South America; and September 22 (total) in the Arctic and Central Asia. Geophysical stations in the eclipse zones and their conjugate areas treat these days as world days and undertake special programs to study eclipse effects on the earth's atmosphere. For maps of the eclipse zones and pertinent details see any standard astronomical ephemeris or yearbook.

9. **Meteor Showers** of special interest are also marked on the Calendar, including some of the important visual showers and also unusual showers observable mainly by radio and radar techniques. Attention is called to these days (selected by P. M. Millman, Ottawa) in case ionization produced by meteors may account for unusual effects in other geophysical experiments.

10. **"World Days" not appearing on Calendar.** The occurrence of unusual solar or geophysical conditions are announced or forecast through various types of geophysical "Alerts" which are widely distributed by telegram and radio broadcast on a current schedule. The types of Alerts are: magnetic storm (in telegrams MAGSTORM), solar activity (SOFLARE, PROTONFLARE or SOFLARE FLARES), and cosmic ray event (COSMIC EVENT). Sudden and unusual stratospheric warmings (STRATWARM) are also designated. These Alerts are issued by the IUWDS World Warning Agency or under certain circumstances by one of the solar-geophysical Regional Warning Centers. The meteorological telecommunications network coordinated by WMO carries these worldwide Alerts once daily soon after 0400 UT. Many geophysical stations in the various disciplines increase their programs or carry on special experiments to take advantage of the special solar or geophysical conditions during the period of Alert. Selections of **Retrospective World Intervals**, after a delay of a few months, are also announced in suitable publications. An additional service of the Regional Warning Centers is to notify geophysical and solar stations promptly (Ursigrams) with summary details of immediately significant geophysical observations and of major solar events which have important and sometimes long-lasting geophysical effects. The telegraphic addresses of the Regional Warning Centers are as follows: AGIWARN WASHINGTON (USA); DEMPJA TOKYO (JAPAN); IZMIRAN MOSCOW (USSR); IONOSPHERE DARMSTADT (GFR) or CNETAGI MEUDON (FRANCE). Associate RWC operate in some other localities.

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This Calendar for 1968 has been drawn up by A. H. Shapley, Chairman, and J. V. Lincoln, Deputy Secretary, of the IUWDS Steering Committee, in close association with the IUCSTP Commission and the Reporters and spokesmen for the various scientific disciplines and COSPAR. Similar Calendars have been issued annually beginning with the IGY, 1957-58, and have been published in various widely available scientific publications.

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RECOMMENDED SCIENTIFIC PROGRAMS OPERATIONAL EDITION

(The following material was reviewed in 1967 by spokesmen for the various scientific disciplines as suitable for coordinated geophysical programs in 1968 at the 4th IQSY Assembly and 10th Meeting of COSPAR.)

11. **Meteorology.** Particular efforts should be made to carry out an intensified program on the **RGD**—each Wednesday, UT. A desirable goal would be the scheduling of meteorological rocket-sondes, ozone sondes and radiometer sondes on these days, together with maximum-altitude rawinsonde ascents at both 0000 and 1200 UT.

During **WGI** and **STRATWARM** Alert intervals, intensified programs are also desirable, preferably by the implementation of **RGD**-type programs (see above) on Mondays and Fridays, as well as on Wednesdays.

12. **Geomagnetism.** It has always been a leading principle for geomagnetic observatories that operations should be as continuous as possible. Thus the great majority of stations taking part in the geomagnetic program will undertake the same program without regard to the Calendar. The days marked on the Calendar will be of interest mainly to the following two types of geomagnetic stations: (a) Stations recording quick-run micropulsations (with fast chart speeds) are requested to make such records on every **RGD**—each Wednesday, UT—according to the following schedule: 1968 Jan. 3 from 0300 to 0700; Jan. 10 from 0400 to 0800; Jan. 17 from 0500 to 0900; etc. The observatories are not obliged to send their recordings to the World Data Centers except by special request (see IQSY World Days' Manual under Retrospective World Intervals on Micropulsations). (b) Stations which, in addition to other activities, are equipped for making magnetic observations, but which can not carry out such observations and reductions on a continuous schedule are encouraged to carry out such work at least on **RWD** (and during times of **MAGSTORM** Alert).

13. **Ionosphere.** For the vertical incidence sounding program, the summary recommendations are: (a) soundings to be made at five minute intervals or less on **RWDs** for stations normally making observations every quarter hour or at more frequent intervals; all stations are recommended to make at least quarter hourly observations on **RWDs**; (b) f-plots are made for high latitude stations and representative stations at lower latitudes for all days (i.e., including **RWDs** and **WGIs**); (c) profile parameters h_p , q_p or recommended similar parameters to be determined and sent to WDCs for **RWDs** for all stations except those undertaking full profile programs or producing monthly median profiles; (d) copies of hourly ionograms with appropriate scales for **PRWDs** are to be sent to WDCs; (e) stations in the eclipse zone and its conjugate area should take continuous observations on solar eclipse days and special observations on adjacent days in accordance with detailed recommendations in Ionosphere Manuals. Continuous records of ionospheric parameters are acceptable in place of f-plots at temperate and low latitude stations.

For the ionospheric drifts program, observations are made at least on all **RWDs**, on all **WGIs**, on every Wednesday (**RGDs**) and on every Thursday (day following each **RGD**). Hourly tabulations for all days mentioned are sent to the WDCs. It is essential that sufficient observations be made to provide representative values of the diurnal variations. Hourly tabulations for this purpose should also be sent to WDCs.

For the ionospheric absorption program, diurnal hourly observations are made at least on all **RWDs** and hourly tabulations sent to WDCs. Continuous observations on **solar eclipse** days, where possible, for stations in eclipse zone and its conjugate area. Special efforts should be made to obtain additional absorption measurements at temperate latitude stations during the period of Absorption Winter Anomaly, particularly on days of abnormally high or abnormally low absorption (approximately November-March, Northern Hemisphere; May-September, Southern Hemisphere).

For back-scatter and forward-scatter programs, observations should be made on all **RWDs** at least.

For ELF noise measurements involving the earth-ionosphere cavity resonances any special effort should be concentrated during the **WGIs**.

It is recommended that more intensive observations in all programs be considered on days of **unusual meteor activity**.

14. **Solar Activity.** Observatories are invited to issue and send to the WDCs of all disciplines special reports of their regular and any special observations on all **solar eclipse** days to assist in the interpretation of geophysical observations made in the eclipse zones.

15. **Cosmic Rays, Aeronomy.** Experimenters should take into account that observational effort in other disciplines tends to be intensified on the days marked on the Calendar, and schedule balloon and rocket experiments accordingly if there are no other geophysical reasons for choice.

16. **Space Research.** In view of the variability of the D and E regions of the ionosphere, it is desirable to make rocket measurements of their characteristics on the same day at as many locations as possible. Where feasible, experimenters should endeavor to launch rockets on the **Quarterly World Days (QWD)** since these are also days when there will be maximum support from ground observations.

IUWDS International Geophysical Calendar for 1968

1968 JANUARY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

1968 FEBRUARY

S	M	T	W	T	F	S
			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

1968 MARCH

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1968 APRIL

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

1968 MAY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1968 JUNE

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1968 JULY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

1968 AUGUST

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1968 SEPTEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

1968 OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1968 NOVEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

1968 DECEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1969 JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

⑩ Regular World Day (RWD)

22 Day of Solar Eclipse

3 Day with Unusual Meteor Shower Activity

8-9 World Geophysical Interval (WGI)

17 Quarterly World Day (QWD) also a PRWD and RGD

14 Priority Regular World Day (PRWD)

10 Regular Geophysical Day (RGD)

TABLE OF WORLD DAYS MARKED ON THE CALENDAR

1968	RWD	PRWD	QWD	RGD	WGI	ECL.	METEORS
Jan.	16, 17, 18	17	17	3, 10, 17, 24, 31	8-21	—	4
Feb.	13, 14, 15	14	—	7, 14, 21, 28	—	—	—
Mar.	12, 13, 14	13	—	6, 13, 20, 27	—	28-29	—
Apr.	16, 17, 18	17	17	3, 10, 17, 24	8-21	—	21-22
May	14, 15, 16	15	—	1, 8, 15, 22, 29	—	—	4-5
June	11, 12, 13	12	—	5, 12, 19, 26	—	—	6-10
July	16, 17, 18	17	17	3, 10, 17, 24, 31	8-21	—	28-30
Aug.	13, 14, 15	14	—	7, 14, 21, 28	—	—	10-13
Sep.	17, 18, 19	18	—	4, 11, 18, 25	—	22	—
Oct.	15, 16, 17	16	16	2, 9, 16, 23, 30	7-20	—	20
Nov.	12, 13, 14	13	—	6, 13, 20, 27	—	—	16
Dec.	17, 18, 19	18	—	4, 11, 18, 25	—	—	12-14

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IUWDS International Geophysical Calendar for 1969

EXPLANATIONS

1. **Purpose.** The International Geophysical Calendar designates days and intervals selected for special attention for geophysical observations, experiments, data interchange or analyses. It is thus a framework for worldwide interdisciplinary coordination in those programs where it is not practical or meaningful to carry out the same work for each and every day. The Calendar serves mainly the branches of geophysics dealing with the earth's atmosphere. A principal use is for the coordination of the sampling of the many phenomena which vary significantly during the course of a year. The Calendar is prepared by the International Ursigram and World Days Service (IUWDS) with the advice of spokesmen for various scientific disciplines. It is common practice for individual geophysical stations or groups of stations to arrange some of their plans for observations according to the Calendar. Thus geophysicists can expect that their colleagues in other countries, in other laboratories and in other geophysical disciplines will tend to be making increased efforts for the days and intervals marked on the Calendar; the amount of geophysical data in existence, at the World Data Centers and elsewhere, will accordingly be greater for Calendar days.

2. **Universal Time (UT)** is the standard of time for all world days on the Calendar, i.e., each begins at 0000 UT and ends at 2400 UT.

3. **Regular Geophysical Days (RGD)** are each Wednesday throughout the year. This weekly sampling schedule is particularly designed for the purposes of the meteorological program but has also been adopted for some other geophysical programs.

4. **Regular World Days (RWD)** are three consecutive days each month, always Tuesday, Wednesday, Thursday near the middle of the month. They are intended for observations, experiments or analyses which can or need be made for about 10% of days and which should be spaced (in groups of three days) throughout the year.

5. **Priority Regular World Days (PRWD)** are one day each month—the RWD which are also a RGD (Wednesday). They are for work which can or needs to be done only one day each month throughout the year.

6. **Quarterly World Days (QWD)** are one day in each quarter of the year. They are the PRWD which fall within the World Geophysical Intervals (WGI) and are also a RGD (Wednesday). The QWD serve to coordinate seasonal high-altitude rocket experiments.

7. **World Geophysical Intervals (WGI)** during 1969 are fourteen consecutive days in each season, beginning on the second Monday of the selected months. They always include the three RWD of the month and the QWD for the season. The WGI are intended for intensified programs aimed at the statistics of seasonal variations or the timing of seasonal changes. The schedule of WGI relative to the equinoxes and solstices is usually made different from year to year; thus the WGI have been shifted two months later than those of 1968.

8. **Solar Eclipses** are March 18 (annular) observable Indian Ocean from near Africa to north of Australia into Pacific Ocean, and September 11 (annular) observable North Pacific Ocean southeast to coast of Peru and ends in Bolivia. Geophysical stations in the eclipse zones and their conjugate areas treat these days as world days and undertake special programs to study eclipse effects on the earth's atmosphere. For maps of the eclipse zones and pertinent details see any standard astronomical ephemeris or yearbook.

9. **Meteor Showers** of special interest are also marked on the Calendar, including some of the important visual showers and also unusual showers observable mainly by radio and radar techniques. The dates are coded to indicate whether the shower is observable in the northern or the southern hemisphere. Attention is called to these days (selected by P. M. Millman, Ottawa) in case ionization produced by meteors may account for unusual effects in other geophysical experiments.

10. **"World Days" not appearing on Calendar.** The occurrence of unusual solar or geophysical conditions are announced or forecast through various types of geophysical "Alerts" which are widely distributed by telegram and radio broadcast on a current schedule. The types of Alerts are: magnetic storm (in telegrams MAGSTORM), solar activity (SOFLARE, PROTONFLARE or SOFLARE FLARES), and cosmic ray event (COSMIC EVENT). Sudden and unusual stratospheric warmings (STRATWARM) are also designated. These Alerts are issued by the IUWDS World Warning Agency or under certain circumstances by one of the solar-geophysical Regional Warning Centers. The meteorological telecommunications network coordinated by WMO carries these worldwide Alerts once daily soon after 0400 UT. Many geophysical stations in the various disciplines increase their programs or carry on special experiments to take advantage of the special solar or geophysical conditions during the period of Alert. Selections of **Retrospective World Intervals** are later announced in suitable publications. An additional service of the Regional Warning Centers is to notify geophysical and solar stations promptly (**Ursigrams**) with summary details of immediately significant geophysical observations and of major solar events which have important and sometimes long-lasting geophysical effects. The telegraphic addresses of the Regional Warning Centers are as follows: SOLTERWARN BOULDER (USA); DEMA TOKYO (JAPAN); IZMIRAN MOSCOW (USSR); IONOSPHERE DARMSTADT (GFR) or CNETAGI MEUDON (FRANCE); IPSO SYDNEY (AUSTRALIA). Associate RWC operate in some other localities.

RECOMMENDED SCIENTIFIC PROGRAMS OPERATIONAL EDITION

(The following material was reviewed in 1968 by spokesmen of IUCSTP for the various scientific disciplines as suitable for coordinated geophysical programs in 1969, and at the 11th Meeting of COSPAR.)

11. **Meteorology.** Particular efforts should be made to carry out an intensified program on the RGD—each Wednesday, UT. A desirable goal would be the scheduling of meteorological rocketsondes, ozone sondes and radiometer sondes on these days, together with maximum-altitude rawinsonde ascents at both 0000 and 1200 UT.

During **WGI** and **STRATWARM** Alert intervals, intensified programs are also desirable, preferably by the implementation of **RGD**-type programs (see above) on Mondays and Fridays, as well as on Wednesdays.

Atmospheric Electricity. Not-continuous measurements and data reduction for continuous measurements of atmospheric electric current density, field, conductivities, space charges, ion number densities, ionosphere potentials, sferics, ELF, condensation nuclei, etc.; both at ground as well as with radiosondes, aircraft, rockets; should be done with first priority on the RGD each Wednesday, beginning on 1 January 1969 at 0000 UT, 8 January at 0600 UT, 15 January at 1200 UT, 22 January at 1800 UT, 29 January at 0000 UT, etc., (beginning hour shifts six hours each week, but is always on a Wednesday.) Minimum program is at the same time on **PRWD** beginning with 15 January 1969 at 1200 UT. Data reduction for continuous measurements should be extended, if possible, to cover at least the full RGD including, in addition, at least 6 hours prior to indicated beginning time.

12. **Geomagnetism.** It has always been a leading principle for geomagnetic observatories that operations should be as continuous as possible and the great majority of stations undertake the same program without regard to the Calendar. Special efforts recommended are: (a) Stations recording quick-run micropulsations (with fast chart speeds) are asked to make such records on every RGD—each Wednesday, UT—according to the following schedule: 1969 Jan. 1 from 0700 to 1100; Jan. 8 from 0800 to 1200; Jan. 15 from 0900 to 1300; etc. The observatories are not obliged to duplicate their recordings for the World Data Centers except by special request (see IQSY World Days Manual under Retrospective World Intervals on Micropulsations). (b) Stations equipped for making magnetic observations, but which can not carry out such observations and reductions on a continuous schedule are encouraged to carry out such work at least on **RWD** (and during times of **MAGSTORM** Alert).

13. **Ionosphere.** For the vertical incidence sounding program, the summary recommendations are: (a) soundings to be made at five minute intervals on **RWDs** for stations normally making observations every quarter hour; all other stations are recommended to make at least quarter hourly observations on **RWDs**; (b) f-plots are made for high latitude stations and for the so-called "representative" stations at lower latitudes for all days (i.e., including **RWDs** and **WGIs**) (Continuous records of ionospheric parameters are acceptable in place of f-plots at temperate and low latitude stations); (c) profile parameters h_p , q_p or recommended similar parameters to be determined and sent to WDCs for **RWDs** for all stations except those undertaking full profile programs or producing monthly median profiles; (d) copies of hourly ionograms with appropriate scales for **RWDs** are to be sent to WDCs; (e) stations in the eclipse zone and its conjugate area should take continuous observations on solar eclipse days and special observations on adjacent days.

For the ionospheric drifts program, observations are made at least on all **RWDs**, on all **WGIs**, on every Wednesday (**RGDs**) and on every Thursday. It is essential that sufficient observations be made to determine the diurnal variations. Hourly tabulations for all days mentioned are sent to the WDCs.

For the ionospheric absorption program, hourly observations are made at least on all **RWDs** and hourly tabulations sent to WDCs. Observations should be continuous on **solar eclipse** days for stations in eclipse zone and its conjugate area. Special efforts should be made to obtain additional absorption measurements at temperate latitude stations during the period of Absorption Winter Anomaly, particularly on days of abnormally high or abnormally low absorption (approximately November-March, Northern Hemisphere; May-September, Southern Hemisphere.)

For back-scatter and forward-scatter programs, observations should be made and analyzed on all **RWDs** at least.

For ELF noise measurements involving the earth-ionosphere cavity resonances any special effort should be concentrated during the **WGIs**.

It is recommended that more intensive observations in all programs be considered on days of **unusual meteor activity**.

14. **Solar Activity.** Observatories making specialized studies of solar phenomena, particularly using new or complex techniques, such that continuous observation or reporting is impractical, are requested to make special efforts to provide to WDCs data for **solar eclipse** days, **RWDs**, and during **SOFLARE PROTON FLARE Alerts**. The attention of those recording solar noise spectra, solar magnetic fields and doing specialized optical studies is particularly drawn to this recommendation.

15. **Cosmic Rays, Aeronomy.** Experimenters should take into account that observational effort in other disciplines tends to be intensified on the days marked on the Calendar, and schedule balloon and rocket experiments accordingly if there are no other geophysical reasons for choice.

16. **Space Research.** It is desirable to make rocket measurements of ionospheric characteristics on the same day at as many locations as possible. Where feasible, experimenters should endeavor to launch rockets on the **Quarterly World Days (QWD)** or on **RWDs**, since these are also days when there will be maximum support from ground observations.

17. **Special Equatorial Interval.** The period March 7 to April 4, 1969 has been designated as a "Special Equatorial Interval" to study ionospheric conditions during an equinox near the crossing point of the magnetic dip and the geographic equators. Major participants will be the German research ship "Meteor" at the crossing point and the German research ship "Planet". Participation is invited by established stations within the equatorial belt, particularly those in regions where there is a large latitude difference between the geographic equators and the line of zero magnetic dip. Ionosphere stations should increase their frequency of observations, if possible, and rocket launches should be scheduled during this period by preference. (Information supplied by Prof. W. Dieminger, Max-Planck-Institut für Aeronomie; 3411 Lindau über Northeim, German Federal Republic.)

The International Ursigram and World Days Service (IUWDS) is a permanent scientific service of the International Union of Radio Science (URSI), with the participation of the International Astronomical Union and the International Union Geodesy and Geophysics. IUWDS adheres to the Federation of Astronomical and Geophysical Services of the International Council of Scientific Unions. The IUWDS coordinates the international aspects of the world days program and rapid data interchange, and also publishes subsequently **Abbreviated Calendar Records** of solar and geophysical indices and events.

This Calendar for 1969 has been drawn up by A. H. Shapley, Chairman, and J. V. Lincoln, Deputy Secretary, of the IUWDS Steering Committee, in close association with the IUCSTP Commission and the Reporters and spokesmen for the various scientific disciplines and COSPAR. Similar Calendars have been issued annually beginning with the IGY, 1957-58, and have been published in various widely available scientific publications.

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IUWDS International Geophysical Calendar for 1969

(See other side for instructions on the use of this Calendar)

1969 JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1969 FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

1969 MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1969 APRIL

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

1969 MAY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1969 JUNE

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1969 JULY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

1969 AUGUST

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1969 SEPTEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1969 OCTOBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1969 NOVEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

1969 DECEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1970 JANUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

④ Regular World Day (RWD)

⑮ Day of Solar Eclipse

3 Day with unusual meteor shower activity, Northern Hemisphere

7 Day with unusual meteor shower activity, Southern Hemisphere

4 World Geophysical Interval (WGI)

⑮ Quarterly World Day (QWD) also a PRWD and RGD

⑮ Priority Regular World Day (PRWD)

① Regular Geophysical Day (RGD)

⑤ Special Equatorial Interval (see text)

TABLE OF WORLD DAYS MARKED ON THE CALENDAR

1969	RWD	PRWD	QWD	RGD	WGI	ECL.	METEORS
Jan.	14, 15, 16	15		1, 8, 15, 22, 29	6-19		3, 15
Feb.	11, 12, 13	12		5, 12, 19, 26			
Mar.	18, 19, 20	19	19	5, 12, 19, 26	10-23	18	
Apr.	15, 16, 17	16		2, 9, 16, 23, 30			21, 22
May	13, 14, 15	14		7, 14, 21, 28			4-6
June	17, 18, 19	18	18	4, 11, 18, 25	9-22	8-10, 13-14	
July	15, 16, 17	16		2, 9, 16, 23, 30			27-31
Aug.	12, 13, 14	13		6, 13, 20, 27			10-14
Sep.	9, 10, 11	10	10	3, 10, 17, 24	8-21	11	
Oct.	14, 15, 16	15		1, 8, 15, 22, 29			20-22
Nov.	18, 19, 20	19		5, 12, 19, 26			17
Dec.	16, 17, 18	17	17	3, 10, 17, 24, 31	8-21	4-6, 12-15	

Special Equatorial Interval March 7 to April 4.